

# Raptor migration at Hoang Lien Nature Reserve, northern Vietnam

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Between 13 and 25 October 1997, a total of 1,884 migrating raptors were recorded at Hoang Lien Nature Reserve, Lao Cai province, Vietnam. Although sporadic raptor migration records from Vietnam exist, a migration of this scale has never been previously recorded. Apart from the scale of the migration, another notable factor was the rarity of some of the species involved in northern Vietnam. The discovery of a previously unknown phenomenon of this size demonstrates the relative scarcity of basic information on the avifauna of Vietnam and highlights the need for further research.

## INTRODUCTION

Hoang Lien Nature Reserve covers an area of 24,658 ha in the Hoang Lien mountains, and is situated close to Cha Pa (Sa Pa) town, Lao Cai province, northern Vietnam (Fig. 1). At its closest point, the nature reserve is 30 km south of the Chinese border and contains Vietnam's highest mountain, Fan Si Pan (3,143 m). The Hoang Lien mountains are a south-eastern extension of the Ailao Shan mountains in Yunnan province, China, and run across north-western Vietnam, from north-west to south-east. They can, therefore, be considered to be an obstacle to migrating birds flying between their breeding grounds in north-eastern China and Korea, and their wintering grounds in South-East Asia, the Malay archipelago and East Africa.

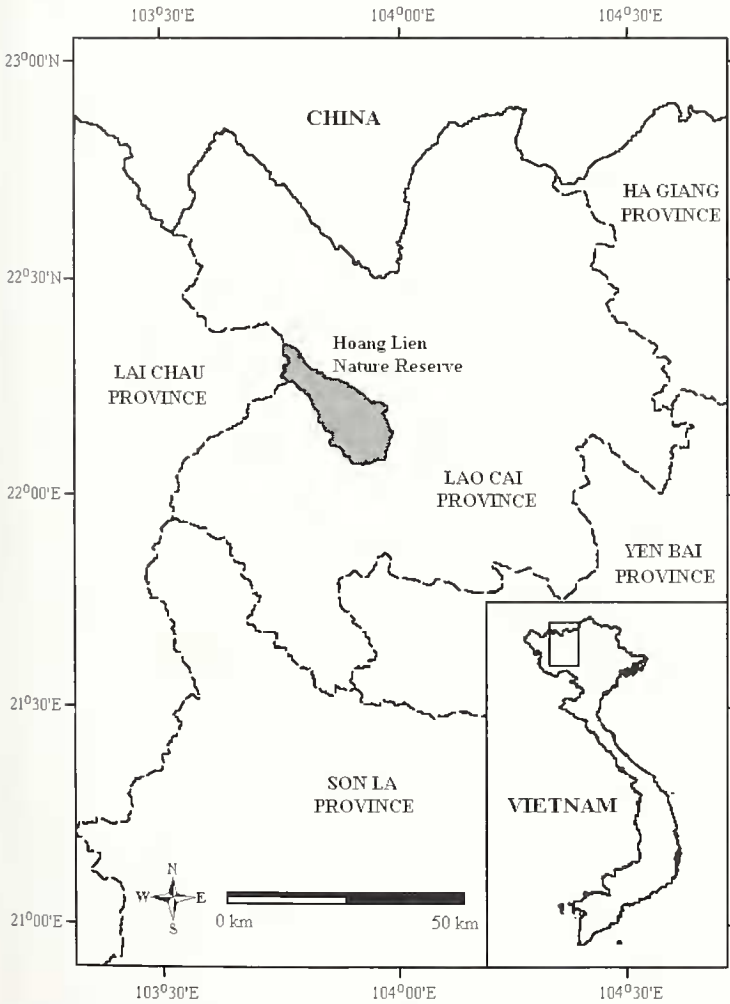


Figure 1. Location of Hoang Lien Nature Reserve.

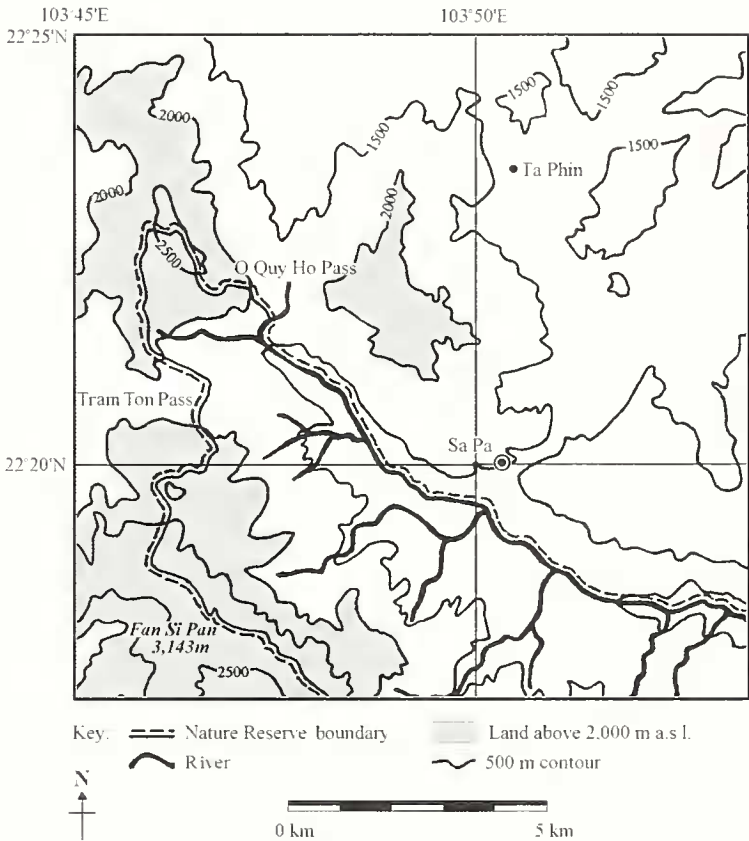


Figure 2. Hoang Lien Nature Reserve showing the location of the Tram Ton and O Quy Ho passes.

During a 12-month survey in 1997 of Hoang Lien Nature Reserve by the environmental conservation NGO Frontier-Vietnam, autumn migration by raptors was observed.

## METHODS

During the heaviest period of migration, on 13, 14 and 15 October 1997, continuous daytime observations (between 06h00 and 18h30) were made from a vantage point at the Tram Ton pass (22°21'N 103°46'E, 1,950 m). Between 16 and 25 October, observations were also made at the O Quy Ho pass (22°22'N 103°48'E, 1,750 m), through which the migrants were believed to pass prior to crossing the Tram Ton pass (Fig. 2). During the latter period, observations were made for an average of five hours a day at the Tram Ton pass and two hours a day at the O Quy Ho pass.

Both vantage points were directly beneath the migration flight path and afforded excellent views of migrants. The weather during the migration period was clear, visibility was excellent and most migrating raptors passed overhead at a height of under 100 m. Additionally, many birds circled for several minutes in order to gain height prior to crossing the Tram Ton pass. It was therefore possible to make accurate field identifications of most birds.

Accurate recording of numbers of individuals was a greater challenge, however. During the heaviest period of the migration, birds passed between dawn and dusk, and there was a continual stream of birds overhead. Fortunately, most migrating flocks were strung out, allowing birds to be counted more easily. A team of three observers, working in relays and using binoculars, counted the birds as they passed a set of telegraph wires that, conveniently, stretched across the Tram Ton pass. As it was necessary to maintain an almost permanent watch, observations were recorded on a dictaphone and later transcribed.

## RESULTS

Between 13 and 25 October 1997, a total of 1,752 migrating raptors were recorded crossing the Tram Ton pass, including 1,401 Amur Falcons *Falco amurensis*, 110 Grey-faced Buzzards *Butastur indicus*, 33 Eurasian Sparrowhawks *Accipiter nisus* and 23 Oriental Honey-buzzards *Pernis ptilorhynchus*. During the period 16 to 25 October, a further 132 were observed at the O Quy Ho pass, including 64 Grey-faced Buzzards and 24 Eurasian Sparrowhawks. The heaviest days, in terms of numbers of migrants, were 13, 14 and 15 October, during which 1,433 raptors (76% of the total) were recorded. After 25 October, the main body of migrants had passed, although there were occasional records until 10 November.

Observations suggest that the migrants flew south through the O Quy Ho pass before passing west through the narrower Tram Ton pass. The Tram Ton pass, which lies between Fan Si Pan mountain to the south and Ban Khoang mountain (2,819 m) to the north, is the lowest point in the Hoang Lien mountains south of the Chinese border, and represents a bottleneck in the migration route of any species crossing the Hoang Lien mountains.

### Raptor species

#### ORIENTAL HONEY-BUZZARD *Pernis ptilorhynchus*

Eight birds were recorded at the Tram Ton pass at 18h00 on 13 October, five at 10h00 on 14 October, and 10 at 16h00 on 15 October. At the O Quy Ho pass, three birds were recorded at 08h00 on 16 October, and 10 at 11h00 on 24 October.

#### BLACK KITE *Milvus migrans*

At 17h00 on 14 October three birds crossed the Tram Ton pass; a further six birds crossed at 17h00 on 15 October; and one more at 08h00 on 19 October. Four birds were recorded at the O Quy Ho pass at 08h00 on 16 October.

#### PIED HARRIER *Circus melanoleucos*

Seventeen Pied Harriers were recorded at the Tram Ton pass: two males at 17h00 on 13 October; one male at 08h00 on 14 October; a flock of two males and four

females at 16h00 on the same day; and eight birds on 15 October, spread throughout the day.

#### JAPANESE SPARROWHAWK *Accipiter gularis*

Two males were recorded at the Tram Ton pass: one at 14h00 on 13 October and one at 08h00 on the following day.

#### EURASIAN SPARROWHAWK *Accipiter nisus*

A total of 57 birds were recorded during the period from 14 to 24 October. At the Tram Ton pass on 14, 15 and 22 October, 2, 30 and 1 birds were recorded, respectively. Eighteen birds were recorded crossing the O Quy Ho pass on 24 October, and a further six birds crossed on the following day. From 29 October onwards, a further 14 birds were recorded in and around Hoang Lien Nature Reserve, although it is thought that most of these were winter visitors to the area, not passage migrants.

#### NORTHERN GOSHAWK *Accipiter gentilis*

At 08h00 on 15 October two females were recorded at the Tram Ton pass. At the O Quy Ho pass two females were recorded at 08h00 on 16 October, and a single male at 14h00 on 24 October.

#### GREY-FACED BUZZARD *Butastur indicus*

A total of 174 Grey-faced Buzzards were recorded: 110 crossed the Tram Ton pass from 10h00 onwards on 14 October; 40 crossed the O Quy Ho pass at 08h00 on 16 October; and 24 were recorded there at 13h00 on 24 October.

#### COMMON BUZZARD *Buteo buteo*

At 15h00 on 13 October a single bird crossed the Tram Ton pass. A further 20 birds crossed at approximately the same time on 15 October. Eleven birds were recorded crossing the O Quy Ho pass at 13h00 on 24 October.

#### BLACK EAGLE *Ictinaetus malayensis*

Two birds crossed the Tram Ton pass on 15 October, and a single bird crossed on 23 October. At the O Quy Ho pass one bird was recorded on 26 October. It is not certain, however, that these birds were migrants, as Black Eagle is a resident at Hoang Lien Nature Reserve.

#### GREATER SPOTTED EAGLE *Aquila clanga*

From 11h00 onwards on 24 October nine birds crossed the O Quy Ho pass. A further six birds were seen over Ta Phin village (22°24'N 103°51'E, 1,300 m) on 31 October, and a single bird was seen at the same location on 2 November. The six Greater Spotted Eagles recorded by J. C. Eames and F. R. Lambert on 24 October 1997 (*OBC Bulletin* 27, From the Field) are the same birds as reported here. These records are notable because they represent the first of this species from West Tonkin (King *et al.* 1975, J. C. Eames verbally). Furthermore, this species is listed as Vulnerable by BirdLife International (2001).

#### AMUR FALCON *Falco amurensis*

Between 17h00 and dusk (c.18h00) on 13 October 23 birds crossed the Tram Ton pass. One hundred and six birds crossed between 06h00 and 09h30 on 14 October, and 243 between 14h30 and 16h00 on the same day. On 15 October 720 birds crossed in a constant stream from dawn (c.06h00) until dusk. On 16 October 20 birds were observed flying between the O Quy Ho pass and the Tram Ton pass at 07h30. Between 16h00 and dusk



on 19 October 280 birds were observed crossing the Tram Ton pass. Eight birds crossed at 09h00 on 23 October and one at 16h00. At the O Quy Ho pass two birds were recorded at 14h00 on 24 October and one at 13h00 on 25 October. A single bird was seen flying over Ta Phin village on 2 November. The 240 Amur Falcons recorded by J. C. Eames and F. R. Lambert on 19 October 1997 (*OBC Bulletin* 27, From the Field) are probably the same birds as reported here.

#### EURASIAN HOBBY *Falco subbuteo*

At the Tram Ton pass on 15 October a single bird was observed amongst a flock of Amur Falcons. On 23 October also at the Tram Ton pass, four juveniles were recorded.

#### PEREGRINE FALCON *Falco peregrinus*

After the period of the main migration, a single Peregrine Falcon, presumably a migrant, was observed over Ta Phin village on 2 November.

#### Unidentified raptors

A flock of 120 unidentified falcons *Falco* sp. crossed the Tram Ton pass between 17h00 and dusk (c.18h00) on 13 October; four unidentified juvenile falcons that crossed at 08h00 on the following day were possibly stragglers from the same flock. Due to poor light conditions, the identity of these birds could not be confirmed. In addition, at 17h00 on 17 October an unidentified *Aquila* sp. eagle crossed the Tram Ton pass.

#### Other species

During the period 13 to 25 October a number of other passage migrants were recorded, sometimes in large numbers. By far the most abundant was Barn Swallow *Hirundo rustica*, 1,800 of which were recorded on a single day. Other common migrants included Red-rumped Swallow *H. daurica*.

One final record of interest is of four Woolly-necked Storks *Ciconia episcopus* that crossed the Tram Ton pass at high altitude at 17h30 on 13 October. This record is remarkable, given that it is the first recent one of the species from northern Indochina (Duckworth *et al.* 1999, Robson 2000). There are historical records from Yen Bai and Bac Can provinces in northern Vietnam (Delacour and Jabouille 1931, Vo Quy 1975). There is also an old record from northern Laos: a single bird on the Plain of Jars, which was described as 'probably off course' (David-Beaulieu 1944). The species has not been recorded in China (Meyer de Schauensee 1994, MacKinnon and Phillipps 2000). It is not clear where the observed birds were coming from nor where they were headed to.

## DISCUSSION

#### Timing of migration

One of the most notable features of the raptor migration observed at Hoang Lien Nature Reserve was the temporal concentration of the migrants: 76% of migrating raptors passed through the nature reserve in a three-day period. It is probable that the main causal factor for this concentration was the weather. With respect to bird migrations at a site in north-eastern China, Williams *et al.* (1992) noted that waves of visible migration are sometimes recorded after the passage of

cold fronts. These are precisely the conditions which prevailed in Hoang Lien Nature Reserve in October 1997: the period from 9 to 13 October was cold and overcast with intermittent rainfall. On the afternoon of 13 October the sky became clear, the temperature increased and the first large group of migrants (120 unidentified falcons, 23 Amur Falcons and 17 Pied Harriers) passed at 17h00.

The possibility that migrants were overlooked during the preceding cloudy days when visibility at the Tram Ton pass was very poor cannot be discounted. However, many of the larger raptors (such as Grey-faced Buzzard) were observed circling prior to crossing the Tram Ton pass, suggesting that they were reliant upon thermals in order to gain sufficient height to cross the 1,950-metre-high pass. Therefore, it seems more likely that migrants were unable to cross the Tram Ton pass while cold and overcast conditions prevailed and that numbers built up either east of the Tram Ton pass or north of the O Quy Ho pass until the adverse weather passed.

#### Implications for the study of Amur Falcon migration

'The most striking migration pattern of all among the insect-eaters is perhaps found in the [Amur] Falcon' (Alerstam 1990: 171). Amur Falcons breed in Siberia, eastern China and northern Korea, and winter in Zimbabwe and Botswana (Alerstam 1990). The migration is underway by September and goes via Burma, Bangladesh and India (Brace 1994). Departure from Africa begins before the end of February but little is known about the return route (Alerstam 1990).

There have been a small number of other autumn records of this species from South-East Asia; for instance, several flocks, the largest of which numbered over 40 birds, were observed in Chiang Mai province, Thailand, between 30 October and 12 November 2000 (*OBC Bulletin* 33, From the Field), and a single male was recorded at Mae Wong National Park, Thailand, on 27 September 1999 (*OBC Bulletin* 31, From the Field). However, none of these records were of flocks numbering more than a hundred birds.

The records here represent only the third record of Amur Falcon from Vietnam. On 5 May 1995 C. Robson and U. Olson saw three at Lo Qui Ho (O Quy Ho pass) 'amongst other migrating raptors' (*OBC Bulletin* 22, From the Field). On 16 November 1995, J. C. Eames saw a single male at Xuan Thuy Nature Reserve (20°17'N 106°23'E) (J. C. Eames verbally).

Subsequent to the records presented here, there have been three further records from Vietnam. On 4 November 1999 J. W. Duckworth observed a male at Van Long proposed nature reserve (20°22'N 105°54'E), coasting low with some Common Kestrels *Falco tinnunculus* before gaining height and heading off to the south (J. W. Duckworth *in litt.*). On 21 October 2000 four Amur Falcons were observed crossing the Tram Ton pass (author's own data). On 30 March 2002 a flock of 112 Amur Falcons was observed over Van Ban town (20°05'N 104°15'E), 50 km south-east of the Tram Ton pass (Tordoff *et al.* 2002).

Given that Hoang Lien Nature Reserve has been the focus of relatively large amounts of ornithological study compared with other sites in northern Vietnam, it is perhaps surprising that a migration of this magnitude should not have been recorded by past



ornithological expeditions to the area. It is possible that the migration observed in autumn 1997 was not a regular event but that the migrants were displaced from their usual route by unusual meteorological conditions. However, it is more probable that the migration was previously overlooked, in part because many earlier expeditions visited the area in winter, including Delacour's fifth expedition to Indochina (November and December 1929; Delacour 1930) the Kelley-Roosevelts expedition to Indochina (February 1929; Bangs and van Tyne 1931) and Bjorkegren's second expedition to Indochina (December 1938 and February 1939; Eames and Ericson 1996). Moreover, the Amur Falcon record from the Tram Ton pass in October 2000 indicates that the autumn raptor migration observed at Hoang Lien Nature Reserve may be a regular event.

It is reasonably well established that the southbound route of migrating Amur Falcons includes South-East Asia. For instance, David-Beaulieu (1944) reported that the species was a fairly regular passage migrant through northern Laos in October. However, the return flight path is not well established. Alerstam (1990) mentions an observation of a flock of migrating Amur Falcons passing Mecca in April which suggests a return route north of the Himalayas, crossing Arabia and Central Asia. However, records from Thailand in April (Brace 1994) and Laos in May (Davidson 1998) suggest that at least some of the returning migrants pass through South-East Asia.

The returning Amur Falcons observed at Hoang Lien Nature Reserve in May (*OBC Bulletin* 22, From the Field) and at Van Ban town in March (Tordoff *et al.* 2002) indicate that the spring migration route through South-East Asia encompasses Vietnam. However, no records of returning migrants were made during the spring of 1998 by the Frontier-Vietnam survey (although no fieldwork was conducted during the period 15 March to 3 April 1998).

Ferguson-Lees and Christie (2001) state that the entire global population of Amur Falcon winters in sub-Saharan Africa. Consistent with this is the fact that there have been no records of the species from South-East Asia during the period from December to February. However, given the relatively low level of knowledge about the species, the possibility that a minority of Amur Falcons winter in South-East Asia cannot be ruled out.

## CONCLUSIONS

The Tram Ton pass in Hoang Lien Nature Reserve appears to be a bottleneck for the autumn migration of raptors through northern Vietnam. The timing of movements through the pass seems to be determined by prevailing weather conditions, particularly the movement of a cold front.

The raptor migration records described in this paper serve only to highlight the existence of this phenomenon in northern Vietnam. Further research is required in order to determine, first, whether autumn raptor

migrations are a regular event and, second, the scale on which returning migrants pass through Hoang Lien Nature Reserve.

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